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625 562 thought that the men's guard was consuming privately from the reserve more food than it was preserving, the old men of Loto arranged that the men should serve for six months only, and that adult women should serve as guards for six months of the year. The rationalization was that the women would not be so expert at climbing nut trees as the men, and that they could devote spare time to talo cultivation. Hence in Loto today, the men's guard serves from January through June, each man acting for three months each year; the women's guard, two groups of 30 women each, serves from July through December, each woman also acting for three months each year. The Yato guard consists of men only, about 25 men for each guard. With 50 men in Yato village, each man serves for six months each year, usually in alternate months.

625 561 226 Six watch houses (*wale palenga*) are scattered through the reserve of Uta. The guard is divided into six groups (*taka*); a group of four men or women watches from each house for one month, then moves in rotation to the next house, shifting houses thus each month. The single watch house in Niua at the head of the fish pond, the site of the former lagoon gate to the reserve, is used by the Yato guard as its headquarters.

There is a tendency in Loto to group the members of each guard according to age grades. Thus one guard will comprise the oldest men, the following one middle-aged men, and so on.

Much friendly rivalry exists between successive companies of guards. In Yato, at the end of every month, the guard fishes in the pond for the benefit of the entire village and much is made of the fact if one company catches more mullet than the preceding company.

625 241 262 The monthly guard change (*te uinga pule*) is accompanied by a division of food from the reserves among the people of the village.

In Loto a division of drinking and mature nuts is made. In Yato nuts and, in season, papaya and limes procured from Motu Kotawa by guards who make a special trip to obtain the fruit are divided. The guards under the supervision of older men gather the nuts from Niua and Uta. The change of guard in Niua on January 9, 1935, was marked by the following typical food division: each man, woman, and child on the village rolls received two drinking nuts; the 48 women of Yato received papaya at the rate of one for every three women; 79 children received papaya at the rate of one for every four children. At other times, the division included men and not women, or men and women and not children. The conclusion of the month's guarding is accompanied also by a small division among the guard of fish caught by delegated members of the group and of talo foods prepared by their wives and relatives.

625 245 244 694 The duties of the guard are to patrol the reserve throughout the day and keep away thieves; to preserve the nuts, pandanus trees, and other flora of the reserve from depredations; to keep wandering pigs and chickens from destroying the talo beds. They put tapus (*lausi*) on young nut trees by tying coconut midribs round the boles of the trees. Formerly the breaking of such a tapu was punished by the gods of the reserve; today a thief

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poke about under the piles of fern and look into the corners of the canoes. The women are given permission to bring back a few nuts for their own households. All the nuts in the canoes are removed to the beach by the guard, counted out one by one, and (nowadays) the total written down on paper. Once when the guards doing this were two youths who had just attained adulthood (*wakatane*), it was amusing to see the way they officiously examined the canoes of two elderly men who had gone to Motu Kotawa with the women. The older men, though obviously annoyed with the inquisition, did not dare to make any comment. It is only after the canoes have been given a clearance at this beach that they are allowed to proceed to another beach, nearest to the talo beds, to unload the cargoes of fern leaves.

When a village meeting decides that the villagers shall go to the reserves Ko or Kotawa, for a period to work the talo beds or to procure nuts, the matter is announced to the village by the guard, because it is the guard that oversees this visit and makes sure that none brings from the reserves more than the agreed amount of foods. A typical announcement of this nature, made in Ngake, which has extensive talo beds on Motu Ko, is:

Wakalongolongo mai koina ki te vananga ko avatu ki to taua lulu. Ka wo loa taua ki te motu. Ko taua mea ka aumai: E takiyaea te niu papaku, e takiyepulupulu te niu. Yau na mea a te tiniu ka aumai: E takimatawelau te wawa. E takiyepulupulu te tamaliki. Ke wo taua ki te motu nei, e ya te kaveu, e ya te ngongo, e ya te lakia, e ya te kaka ia, e ya te lupe, e ya te kaipea, e ya te unga, e ya te wuti, e ya te ngangie. Ko te wui mea ia e wakayatia i to taua motu. Ka nono taua i ai e witu po, womamai loa taua. Oti ai.

Listen you to the report to be given to our village. We shall go to the reserve. These are our things we shall bring back: 20 mature nuts each, 10 drinking nuts each. Next the things of the women which they will get: 100 tubers of talo each. For each child, 10 drinking nuts. When we go to the reserve, the crabs (enumerated) and the birds (enumerated), bananas, and *ngangie* wood will be tapu. Those are the things to be tapu in our reserve. We shall stay there for seven nights, then return. That is all.

Throughout the stay on the reserve, the guard reports each night the events of the day, makes sure by inspection visits during the day that the tapu foods are not being touched, and when the time comes to return, goes from house to house, counting the nuts piled up ready for the return trip. Visits to the reserve of Ngake were formerly made on such occasions as follows:

At times fixed by the chief of Ngake and the council of men, all the men would go to Motu Ko to collect nuts and to fish. Young men wishing to go to the reserve at other times to set birds or for whatever purpose, had to procure permission previous to the visit. At one time, it was customary for parties of three or four men to be given permission to fish from the outer reefs of the reserve. Permission was granted for a three days' stay only, and if the men stayed longer than this period, they were automatically considered thieves and treated as such on their return. At other times, at a meeting of the chiefs of the island, men of the other two villages were given permission by Ngake to go to Motu Ko for a set period in order to fish from the reefs.

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This was a return for courtesies rendered to Ngake men by the other villages, particularly deep-sea fishing privileges off the western reefs of Yato.

That the reserves are well guarded is evident from two incidents:

In walks over the island with Yato informants, amazement was always expressed in their faces when I casually proposed taking a short cut to our objective across the reserve of Loto. Even though I thought that my presence was sufficient evidence that my informants were not likely to steal nuts or talo from the reserve, informants never set foot on the reserve without finding the nearest guards and informing them that their visit to the reserve was in my company only, and not for illegal purposes.

On one occasion we were taken to Motu Ko in a Yato canoe. The Yato men took the opportunity to inspect the reserve thoroughly before going on to Motu Kotawa. This was the first time that some of them had set foot on Motu Ko. Ngake friends were continually urging us to pay a visit to Motu Kotawa that they might visit Yato's reserve as canoe crew. When we finally went to Motu Kotawa, Ngake men launched the largest canoe available, and there was keen competition for the privilege of being one of the crew. Even old men, almost incapacitated through age, made a point of being fictitious crew members on this day, and during our few hours' visit on the islet, the Ngake men inspected every nook and cranny of the reserve, appraising the amount of nuts on the trees and the number of roosting birds with critical eyes. The results of the survey proved a topic of excited conversation for many days thereafter.

The villages have retained exclusive control over village reserve lands throughout Pukapukan history. At one period, however, in the reigns of the two chiefs after the seismic wave, the system of village control was temporarily in abeyance. In order to prevent widespread stealing, the law of *pule pue* was decreed whereby the guards had the power to kill by strangulation or drowning anyone caught stealing food from the reserves. Though centralized in one locality at this time, the villages still retained separate identities. Each village unit furnished a guard for the reserves. According to the severity or laxity by which these guard units enforced the law they were named: Te Pule-Wala-o-Yila-Wua (Pandanus-that-glitters-only), the guard of Ngake; Te Pule Tuli (the Tuli bird guard, or the guard that chases), the guard of Loto; Te Pule-Wala-Mangeo (the Guard-of-bitter-pandanus), the guard of Yato.

The guard of Ngake was kind-hearted because the people of Ngake had opposed the passage of the law of *pule pue;* this guard allowed thieves to escape from the reserve, thus earning the name of pandanus that glitters only but does not sting or catch people with the thorns of the leaves. The guard of Loto carried out the letter of the law, and allowed none to escape; they caught people as the *tuli* bird is caught in a trap. The guard of Yato was also strict, so they were named after pandanus that catches people with the thorns of the leaves. It is said that if the Ngake guard saw a man tarrying at the boundaries of the reserve, they told him to hurry inside, take what food he could, and hurry away while they turned their backs on the infraction of the law; that the Yato guard killed law breakers at once, and that the Loto guard killed them on the next day.

Besides accounting for the law breakers, the guard collected nuts and fished for food to divide among all the people. This was done by the guards stationed on Wale, on Motu Ko, and on Motu Kotawa. Other members went through the village each day to see that everyone was accounted for. Those missing had to prove that they were

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not illegally fishing and that they were not stealing from the reserves. Incidents of this period are told in the stories of Tuiva and Kupolu, and in the story of the *pule pae* (pp. 387, 395).

Numerous references in the stories and traditions of the island show that stealing from the reserves was an ever-present problem that challenged both supernatural and secular supervision of these reserved areas. The only major sin in Pukapukan society seems to have been stealing from the reserves; beside this, all other types of antisocial conduct become mere peccadillos. Where the law breaker meekly accepted punishment, secular or supernatural, all was well, but a thief surprised by a guard and resisting arrest either in shame or in desperation might be killed outright in the succeeding brawl. Several ancient graves on Motu Ko are still pointed out as the graves of thieves who were surprised on the reserve and killed.

### TALO BEDS

The center of the reserve of Uta is a communal talo bed controlled by the village of Loto (pl.1,*B*). This large area is subdivided into 11 smaller areas (*ui lulu*), named after nine land divisions in the reserve. There are four similar *ui lulu* in the reserve of Niua. The people of Ngake have more than 15 large talo cultivations on Motu Ko.

Tradition states that the main talo beds on Wale were formed originally by Tumulivaka, son of the god Mataliki. Tumulivaka became troubled in his heart at the number of gods who were taking up residence on Pukapuka. He wished to be separated from the gods, so he stood at Te Auma, the northern point of Wale, and stuck his foot in the sand. This made a big separation or channel in the land from Te Auma to the pond, Te Vaitane, in Ngake village, and thence to the sea. As this follows the line of the present talo beds, it is common to refer to these beds as Te Akanga-vae (Striking-of-the-foot). Mataliki with his wife and the gods lived on the western side of the division, *te muli uvaua*, so called because it faced the setting sun, while Tumulivaka and his sister, Te Matakiate, lived on the eastern side, *te mata uvaua*. As the island became more populated, this natural excavation, widened and deepened in places, was used for talo beds.

It is probable that the first migrants to the atoll found natural hollows in the land, caused by wave action when the atoll was being built up above sea level, and used these hollows as the basis for the talo beds. Successive generations continued the work of excavation, no light task with coconut shells, coconut baskets, and digging sticks as the only implements. Subsurface water seeped in and rain water helped to rot the artificial fill of dried coconut midribs, *kotuua* ferns, and other plant material into a humus soil, which became in time excellent soil for talo cultivation. The results of the excavations are seen in the raised embankments (*tua motu* or *tua ui*) which follow the line of the talo beds and divide one bed from the next. That natural hollows were first used as beds is indicated by hillocks about 40 feet high running beside some beds. It is impossible to imagine that

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The boundaries between the lineage sections and between the homestead lots are well marked by stones, coconut and *pukamo* trees, and graves of ancestors. There is no record that a guard similar to the *pule* was used to protect these boundaries, which are nevertheless well known, well kept, and respected.

If a boundary tree dies or is blown down, another is immediately planted in its place and tended until it becomes an efficient boundary marker. People of the lot use only the trees growing on their own household lots for domestic purposes. If a nut drops from a tree growing on a homestead boundary and falls on the land of the next lot, it must be procured at once. If it is allowed to remain to grow into a tree across the boundary, the tree belongs to the man on whose land it grows. A person in theory has the right to keep nuts that have fallen on his property from trees growing across the boundary, but this is rarely done.

At the death of the household head, his house site and nut trees descend in the paternal line. The children of the deceased act as joint owners of the property through the trusteeship of the eldest male of the family. A man or a woman who may marry and live away from his or her paternal lot still has a claim to the nuts grown on the lot and expects to draw nuts from that lot in an emergency. Children of a man residing matrilocally retain an interest in their father's paternal lands. Children do not normally inherit coconut trees from their mother. According to Mitimoa, it was formerly the custom to divide coconut trees among men, giving them to women only when there were no sons in the family, but the custom today is to share coconut trees among both sons and daughters so that none will ever be deprived of nuts.

In former days, a well was sunk on each homestead lot for the use of the households living on the lot. Three lots in Yato still have their own wells, each used by the people of the lot. Others may draw water from these wells, but through courtesy right only, I think. If the water level in the well is low, outsiders drawing water are regarded with a somewhat unfriendly eye.

No story or legend is remembered which relates how the lineage sections or lots were originally formed. Pau believes that the paternal lineages of Ngake held *tutuki* contests at various times to settle boundaries, and cites as evidence the very irregular boundary lines. Loto informants have no memory of *tutuki* for the Loto sections, and add: "The Loto sections are so small and short, running across Wale as they do at its narrowest part, that they would not be worth quarreling about—the gain to one paternal group at the expense of the other would be so slight."

As a matter of speculation, it is likely that originally the people of the same paternal lineage congregated together on the same piece of land. Cemeteries would be placed there and boundaries marked off. Thus sections of land would come to be associated with certain lineages. But through patrilocal marital residence and personal choice,

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Informants stated that in former days there were fewer canoes than today. A tapu (*laui*) for protecting a canoe tree was instituted by making four cuts on the bole of a tree, about 6 feet from the ground. Most canoes, especially the large ones, were the property of the paternal lineage groups, each of which might own from one to three canoes. As the canoes belonged to the corporate entity, no problem of inheritance arose.

The ownership of nut trees has already been mentioned. Like trees in the reserves, individually owned trees are protected by a tapu of a coconut midrib. *Pukama* trees are also individually owned and are very valuable in that the leaves provide the best plant material for fertilizing (*uakalepo*) the talo beds. *Pukama* and coconut trees are planted over the buried afterbirth of the new-born child along the boundaries of homestead lots. Individual control of *pukama* trees is carefully guarded. During the season for mulching (*uakalepo*) the talo, it is not uncommon for two women to enter into physical encounters over rights to *pukama* trees which both claim to control.

Individual named talo beds (*ui tangata taki tai*)—twenty-two in all on Wale (see pl.1,*A*)—are inherited in the male line, or according to bequest. They have been excavated and named by individuals in the past. Some of the names of owners, as given by informants, refer to living people, others to the original makers of the beds, one or more generations back. Few Ngake talo beds remain on Wale; most private beds were situated close to the old site of Ngake village at Utupoa, and were destroyed by the tidal wave that overwhelmed the village in 1914. The beds were filled in with sand, and have since been planted with nuts; new talo beds are being excavated now on Motu Ko.

Inheritance of other items of personal property is according to rule or by right of bequest (*uakauiti*). When an individual dies, much of his property—adzes, pearl-shell hooks and ornaments, malos, sleeping mats—is buried with him. If he dies intestate, all that remains after the survivors have fulfilled the last duties to the deceased is divided among the children, blood and adopted. When an individual has made a bequest before death, his property is divided accordingly. Fear of retribution by the spirit of the deceased if the terms of the bequest are not strictly carried out insures that the last wishes of the dying man will be fulfilled.

The house is generally inherited by children or paternal male relatives of the deceased. Two exceptions in which the house was inherited by the wife of the deceased came to light in the census.

In one household in Yato, the mother is a Loto woman, twice married. Her first marriage was with a Yato man, and residence was patrilocal. When her husband died, the widow inherited the house and occupied it in Yato. When she remarried, her second husband came from Ngake to live with her in this house. In a household in Ngake, a widow and her children continue to reside in the deceased husband's house. The widow is referred to as the owner of the house, but since her children are young,

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Canoes are bailed dry and excess moisture is wiped out with wringers of coconut fiber. They are covered with old coconut-leaf mats (*pola*), unplaited dry coconut leaves, and pieces of pandanus matting. This canoe covering is termed *kaukau lama* or *tapola*. Coconut-leaf butts and lengths of timber are leaned against the covering to prevent its blowing away in the wind.

Formerly canoes were never anchored with a cable to prevent them from drifting. A stick, called *iki tawia*, was driven into the sand of the resting place of the canoe just forward of the stern cross boom on the port side of the canoe between the hull and the longitudinal spar. This served to anchor the canoe securely because the top end of the stick projected well above the cross boom.

## Cultivation and Harvesting

The vegetable foods of the Pukapukans are limited to coconuts, talo, *pulaka*, bananas, and pandanus. Today a few papayas and limes grow on Motu Kotawa. Coconuts and talo were and are the staple vegetable foods; the coconut is immeasurably the more important. All parts of the coconut tree were used for food as well as clothing and sennit; its value led the people to study every phase in growth of fruit and tree. Any Pukapukan can distinguish stages in the growth of the nut by a glance at a tree, however high; and he will climb only that tree which has on it the particular fruit for his purpose.

### Coconut

The origin of the coconut is told in the following Pukapukan version of a widespread Polynesian myth.

Mauieuli and Mauiepopo were a Pukapukan man and wife. Mauiepopo conceived a child by her husband and, as is the habit of women at this time and in this condition, she longed for special and strange foods to eat. She had tasted everything that her husband could bring her, but still she longed for other foods. Her husband fished and fished and brought her home his catch, but she refused to eat it, saying, "This fish smells rotten to me. Take it away. I do not like it. Go fishing again and bring me some other fish." So he went fishing again, and this time brought home some sweet fish, fat and delicious. But again his wife refused to eat, saying, "This fish is too sickly sweet. I don't like it." This went on for many days, the husband procuring all kinds of new fish, the wife refusing them all, until he was worn out with his toil, while his wife pined away for food. At last he said to her, "Tell me what kind of fish it is that you long for, and then I will try to bring it to you." She replied, "There is one fish only that I desire and that is a piece of the *tuna* eel."

The man got his bait and hooks and went to the hole of the *tuna*. He baited his hook and threw it into the hole, but the *tuna* would not bite. He tried many kinds of bait fish in turn but with no luck. At last in despair he tried a bait of flowers and leaves, but still the *tuna* would not bite his hook. In the end, when he was about to give up altogether, he thought of his wife sitting at home waiting for him and decided to make one more try. For this last effort he baited his hook with the strong-perfumed

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flower of the *uvtau* tree. As he baited his hook and dropped the line into the hole he made this chant: "Mauieuli, Mauiepopo, ta te matau, e matau lave" [Mauieuli, Mauiepopo, (we) prepare the hook, the fast-gripping hook]. The *tuna* took the bait and was soon fast fixed to the hook. The man hauled the fish from the hole, and when he was about to club it to death the fish spoke, saying, "Hear my words before you kill me. When I am dead, cut off my head. Let your wife eat my body, but my head you must plant in the ground in front of your house." The man listened well to the words of the *tuna*. Then he killed the fish, cut off its head, and planted it in front of his house. The body he wrapped in leaves, cooked in the oven, and took to his wife. She saw the eel and said, "Here you are at last with just the kind of fish I have been longing for." With these words she ate the fish and was satisfied.

After a time the head grew up into a tree which later bore nuts, one nut on the topmost stem, two nuts on the second stem, three nuts on the third stem, and so on up to ten nuts on the tenth stem. Then later it had twenty stems and on the twentieth were twenty nuts. Finally the tree bore a heavy crop of nuts. As the earliest nuts ripened and became hard, they dropped from the tree to the ground. Mauieuli collected all the nuts. Then he had the idea of giving nuts to all the islands in the Pacific. He divided the nuts into two parts; one part for the islands of the western Pacific, the other part for the islands of the eastern Pacific. Then he took one nut at a time from the western pile and threw it into the air. As he threw he called out the name of an island and there the nut landed. When the western pile was finished he started on the eastern pile, throwing a nut into the air as before for each island in the eastern Pacific. In this way all the islands of the Pacific received the coconut. After he had used all the nuts from the tree, he thought, "In this division I have forgotten all about Pukapuka, which is neither east nor west. Te Ulu-o-te-watu has received no nuts from this division." He looked around on the ground and found one very small, dry nut. He held up this nut and said, "This shall be the nut for Pukapuka." Thus in the end all the islands shared in the nuts from the tree that grew from the head of the *tuna* fished by Mauieuli.

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After telling this story, informants added that the first nut was planted in the reserve of Uta. It is a characteristic Pukapukan touch to say that Pukapuka received only a wizened nut after almost being left out of the division altogether. In the story of Lata, when Lata divided the huge *Tridacna* shellfish (*payua*), he forgot Pukapuka in the division and was able to give the island only the rock to which the *payua* was growing. Similarly Pukapuka was the last Polynesian island to receive Christianity and among the last islands to receive a visit from anthropologists!

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Coconut trees are empirically divided into 17 classes in terms of the bearing qualities of the tree and the shape or quality of the husk:

Niu lakika: produces nuts that are small but abundant; it sometimes ceases bearing for a long time but usually bears again after this pause.
Niu wata: bears well and continuously but not abundantly.
Niu tauiti: does not bear well and is not often planted.
Niu koalia: bears well but the nuts show a tendency to fall from the tree before they are mature.
Niu wuloole: a non-bearing tree with male flowers.
Niu malie: bears well and has good eating nuts.
Niu mangalo: bears the sweet eating coconut with edible husk.
Niu lalliliki: bears very small nuts.
Niu laruuui: very large nuts.
Niu kawa lolon: nuts with long husks.

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245 Niu kawa nunui: nuts with coarse thick husks.
Niu kawa lapalapa: nuts with thin husks.
242 Niu kawa pukupuku: nuts with round husks.
Niu kawa liliki: nuts that are small and have small husks.
824 Niu kawa pipiki: nuts of which the husks are tough and hard to remove.
Niu mawakiwaki: nuts that are enclosed in a soft husk easily removed.
Niu pulu venu: the best nuts for making sennit.

[137] Coconut trees are also classified in terms of the color of the nut. Six types are recognized:

Niu uyi: dark green.
Niu kawa kenakena: pale green.
Niu kawa melomelo: brownish red.
Niu melo: deep brown, almost red.
Niu melo toto: almost blood-red.
Niu kawa uyiuyi: midway between dark and pale green.

Most nuts are self-planted, but when a man wishes to plant one for himself he makes his selection of planting nut in terms of the above empirical classes. Similarly when a boy is sent to gather nuts, the stage of the nut is mentioned or the purpose for which it is desired; and the boy is told to get it from one of the above types of trees. A man is familiar with all the trees that he controls and with most of the trees on the land sections (*kawa*) of his paternal lineage; by giving specific directions to the nut-gatherer, he can always be sure that he receives the nut best suited to the purpose in hand.

245 Nuts planted by hand should be planted at the new moon; as the moon
782 grows bigger, so will the tree grow larger and never cease to bear. Trees from nuts planted at the time of the full moon will at first bear well, but in successive bearings the number of nuts will be fewer and fewer, until the tree ceases to bear. Informants say that the young people do not pay attention to this planting rule today; hence the fertility of the coconut trees on the island is slowly waning. Formerly when nuts were planted a simple prayer was said to the god Tamayei, that he make the tree grow well. At the time of the *laukava* food division of the chief, gifts were made to Tamayei to thank him for his assistance in producing fertile trees.

245 A tree that does not grow well is *niu tau makulu*. Only certain trees bear the sweet-husked nut (*niu mangalo*); the majority bear a nut with a bitter husk (*niu kava*). Though he can give no reason for this difference, every man knows which of his trees is a *niu mangalo*. As there are no obvious distinguishing features about the tree or the nut, save that of taste, ability to distinguish a *mangalo* tree is based on experience over a number of years. It is not uncommon to allow coconut trees to grow from nuts planted near the cook houses. These grow into small trees and provide a ready supply of leaves and leaflets for use in making platters, baskets, mats, and mosquito switches.

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245/192 The names for the parts of a coconut tree (niu) are:

Pu niu: trunk.
Launin: leaf and leaflets.
Kaunin: leaf midrib.
Tuunin: leaflet midrib.
Pukiawa: midrib bark.
Kaiawa: fibers from leaf midrib.
Kalu: fibrous stipule.

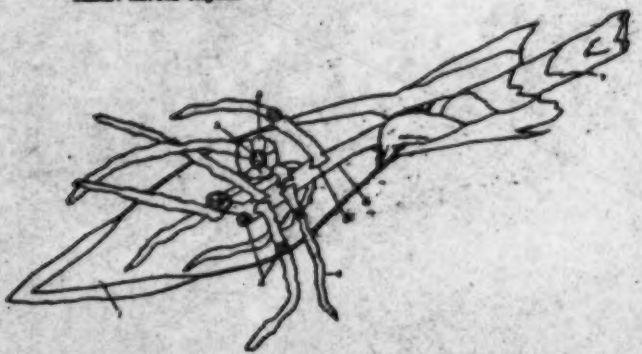

FIGURE 5.—Flower stalk and sheath of coconut tree: 1, flower sheath, *tamar*; 2, base of bract, *ate*; 3, floral bracts, *matahiliwi*; 4, flower stalk, *haulaualaua*; 5, base of flower stalk, *pu o te haulaualaua*; 6, flower stem, *haulaulu*; 7, base of stem, *pu o te haulaulu*.

245/824/192 Names for spathe and flower stalks are given in figure 5. Informants had no ideas about the reproduction of the coconut nor could they give any names for the sexes of the flowers.

## Stages in Growth

Five stages are named in the growth of the tree from the seed nut to the small tree:

Yano: the nut sends its roots (akaaka) into the ground, and stem and leaves grow upward.

Angipua: young stem tissues (niho) have shot upward to a height of about 6 inches.

Uto: sprouts have grown to a height of about 2.5 feet, and the absorbing organ of the coconut cotyledon (uto) has filled the entire cavity of the nut.

Lauka: the tree has taken firm root in the ground and the leaves have attained a height of 4 to 5 feet.

Yau: the leaves are growing vigorously and the young coconut tree is well established.

The 15 named stages in the growth of the fruit are:

Pua hoau: the fertilized female flower of the coconut has developed into a flower bud.

Koau: the immature nut, an inch or more in length. If the koau falls from the tree, it is used in the game of juggling (tilitili koau).

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245 524 Wuuli: the nut is a little larger than koua and has a dark green husk.

Uivaka: the immature nut has grown still larger but is still not used as food. Children use nuts at this stage as crude dolls.

192 Moto katia: the husk is well formed; the cavity is filled with a clear fluid which is bitter and undrinkable; no flesh has yet formed. If the husk is flicked with the fingers it gives off a hollow resonance.

262 Mukomuko: a thin, slimy, easily detachable flesh begins to form over the inner surface of the nut. The mukomuko flesh forms inside the mesocarp at the point of attachment of stalk to nut. When the green outer husk is stripped off, the edible husk is exposed—a white, meaty substance around the outside of the eyes. Mukomuko from certain trees (niu melo, niu kawa kenakena, and niu uyi) is sweeter and more desirable than others. The fluid from the advanced mukomuko nut may be drunk but is more often added to talo puddings.

Niu katikati: the shell is harder, the flesh thicker though still slimy. The liquid ceases to be bitter and may be drunk.

Niu mata motomoto: the drinking nut in its earlier stage. The liquid is not so sweet as in the next stage. The flesh is soft and thick and is eaten after the liquid is drunk. The husk is dry and unfit for food.

Niu mata: drinking nut at its best stage. The liquid is sweet (leka) and the flesh tasty (malie). When this nut is shaken, the liquid inside can not be heard.

Niu mata matua: the nut a little past its best drinking stage. The flesh has become hard, especially about the base of the nut; but the liquid is plentiful and sweet.

Niu katea: the flesh is thick and hard; there is less fluid. The husk is darker than the niu mata, and the liquid rattles inside the shell when shaken. It is not particularly desired as food, but the liquid is drunk and the flesh eaten if the nut is husked. A nut at this stage is normally allowed to develop into a yakali nut. The flesh is specially used now as pig food.

Niu uli: the husk turns brown; the liquid becomes slightly bitter and the flesh hard. The embryo develops.

[258] Niu papaku (modern name, yakali): The flesh (ipiipi) is mature, thick, and hard. Liquid is bitter and unfit to drink. The embryo has developed into an absorbing organ. This is the stage used in copra making. The ipiipi flesh is eaten with fish or other foods in the absence of talo; from it coconut cream (lolo) is made.

Uto: the yakali nut left on the ground to germinate becomes filled with the spongy absorbing organ (uto). The liquid is absorbed and the flesh (ipiipi) is very thin or entirely absorbed. Leaves, stem, and roots develop. The uto is an important everyday food.

Takataka: stored yakali nuts. The embryo is undeveloped; the flesh thick, hard, and sweet; there is no fluid. After 6 months' storage, when the nut is dry but the flesh still fairly soft, the nuts are said to be mamaya. After a year the flesh changes its color from white to yellow-brown and the nut is described as koa ata (coloring). After 3 years the flesh is brown or red and the nut is described as koa kula (red-brown). The flesh is eaten by itself or as a food complement (kinaki) to pandanus fruit or edible mukomuko. It is also used in the preparation of coconut oil.

257 *Takataka* nuts are stored on the high platform of a storage house (*wale takataka*) in one of two ways:

In the first method the *yakali* nuts may be left unhusked (*nui koua*) so that rats can not bite through the husk to the flesh within. The drying process hardens and strengthens the husk fibers which are later soaked in salt water and used to make sennit. By the second storage method the *yakali* nuts are husked and a piece of *fungo* coral of appropriate size is driven into each eye of the nut, effectively closing the eyes so that rats cannot gnaw through the shell. Nuts are stored for five years or more

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251 according to the quality of *takotoko* desired. An excellent food reserve against hard times, households formerly had one of several houses stored exclusively with *takotoko* nuts.

242 192 The various parts of the coconut are named as follows:

Mata: eyes of the nut.
Mulimuli: base of nut opposite eyes.
Pulu: husk.
Pulu kawa: husk fibers.
Kiko: endosperm when soft.
Ipiipi: endosperm when hard.
Ngaipu, plural na ngaipu: endocarp (shell).
Uto: absorbing organ.
Yua: coconut liquid.
Kanava: fatty deposit on surface of flesh of yakali nut.
Tuatua: brown sheath separating flesh from shell in yakali nut.
Uto wai kawa: unhusked nut at uto stage.
Uto: husked nut at uto stage.
Kili uto: sheath between hard endosperm and absorbing organ.
Mata uto: sprouting stem, radicle and roots together.

## Harvesting

245 481 The three articles used in harvesting and husking coconuts—climbing bandage, husking stick, and carrying pole—are all described elsewhere (pp. 123, 146).

In coconut-tree climbing, the right arm is passed around the trunk of the tree and holds the body close to the trunk. The flexed left arm grips the near surface of the trunk and is used to lever the body as the climber progresses up the tree with a series of short springs. Alternatively, both arms are passed around the trunk of the tree, but the former method is preferred where speed is desired.

245 857 Throwing nuts down from the tree is termed *maka te niu ki lalo, totoli te niu ki lalo,* or *takavili te niu.* Nuts are usually harvested by young boys, occasionally by girls. The nut is grasped with the hand from below and twisted off the stem. As the nut is released, the hand is given a rotary twist (*lui*) so that the nut spins around as it falls and drops in a vertical line. It hits the ground on the base of the nut and does not split open with the impact. The spin also prevents the nut from rolling when it hits the ground and so becoming lost in the undergrowth.

245 539 Whenever a special gift of nuts is to be made, the nuts are lowered in a cluster from the tree, so that none will be bruised. They are given to the recipient unhusked. Besides receiving a gift with this special mark of status, the recipient receives also the edible husk of the nut.

245 From 30 to 40 nuts are usually harvested at one time. The husking stick (*koyo*) is next set up.

In husking (*yoka*), a nut is brought down on the point of the stick so that the line of penetration is through one of the three longitudinal ridges (*pauŋa*) in a horizontal plane. A longitudinal section of husk is removed by levering the nut outward and downward from the stick, and the process of impaling and levering is continued until all the husk is removed. When it is desired to preserve the edible husk (*makomako*) much care is taken and the husk is torn off (*yaskili*) gently rather than levered off in large sections.

Drinking nuts are husked completely smooth (*yoka molemole*) or so as to leave a longitudinal strip of husk attached to each nut (*yoka ma te kayani*). A thin length of fiber is raised from this strip. Pairs of nuts are tied together (*kayani*) by these fibers, making it possible to throw them over a rough carrying pole (*amonga*) of coconut midrib and thus conveniently carry (*ano*) them from the bush to the home.

A heap of *yakali* nuts gathered together from the ground where they have fallen is termed *putunga* (pile), whether it is a large or a small heap. Reference to these piles is in terms of the number of nuts gathered, whether 100, 200, or more. Thus a man asks about a pile of nuts, "Na ai te lau nei?" (Whose hundred is this?).

The husked drinking nut is opened by piercing or by cracking:

The eye (*mato*), which is in the widest of the spaces between the three longitudinal ridges on the surface of the nut and which is filled with soft tissue through which the nut sprouts, is pierced (*taka*) with a coconut leaflet midrib or with the pointed end of the *kalokalo* implement. To open the nut by cracking, it is held in the hand and the shell at the base (*sulimuli*) is cracked against a stone. When done by a skillful hand, the base of the nut cracks evenly all around and is lifted with the fingers without loss of the liquid. Today nuts are more often cracked by three sharp blows with a knife blade on the base. After the liquid is drunk, the nut is broken open (*wowo*) by knocking it against a stone. The soft flesh is scooped out with the thumb and fingers; harder flesh that does not yield readily to the pressure of the thumb is scraped out (*wakomataka*) with a scraper (*kalokalo*).

### TALO

The following named varieties of talo are indigenous to Pukapuka: *momolowolo, wakowoiu, wakena, kele, pongi* (slow-growing species), *pelena, talaki, kalelea, newunewu* (slow-growing species), *kula, kiekie, uli, koyikoyi*. All are grown on Pukapuka today save *talo koyikoyi* which was practically all destroyed by the tidal wave of 1914. Introduced varieties are named after the land of importation; as talo Tawiti (Tahiti), talo Polapola (Borabora), talo Niue, and so on.

The origin of talo and *pulaka* in the world is recounted in the story of Maui (1). Some informants incline to the belief that only one variety of talo was introduced by the gods in the first place and that all other varieties sprang from this one by some power of the gods—a rationalization perhaps of the fact that strains of talo are so mixed today that it is hard to grow one true to type. This causes trouble on talo bed boundaries. One woman plants one variety on her boundary, and her neighbor plants another variety on her side of the boundary, hoping thus to keep the boundary between the

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OTHER PLANT FOODS

No origin myth is remembered for pandanus. Though it is not cultivated, pandanus grows abundantly. The keys (*penu*) may be eaten raw when ripe, with or without complement (*kinaki*). They may be sliced and baked (*uulo tao*) and eaten with *ipiipi*. Grated raw and added to talo puddings (*olo uula* and *likoliko uula*) they give a sweet flavor. The juice of baked keys (*makano*) is used in the same way. The fruit is enjoyed by adults and children and provides an important flavoring and sweetening agent in the native diet. Children crack open the keys and chew the inner kernel. The woman in the moon, Yina, is said to be seen kneeling before a stone cracking open pandanus keys.

The banana was among the items fished up by Maui. Of the several varieties of banana (*wuti*) growing on the island today, *wuti pukapuka* is said to be old and indigenous. The trunk of the tree is called *pu wuti*. *Lito* is a small banana leaf; *lowwuti*, a large leaf, used extensively in cooking as a food wrapper; *laumatu*, the old, dried, and withered leaf; *kau*, the leaf midrib; *hili*, the fruit peel; *hiko*, the flesh. Bananas are not abundant on the atoll and are not important in the daily diet. They grow in the talo beds and close to the houses. When available, they are much in favor as gifts. A household may get a small bunch of fruit from its trees once in five or six months. Bananas are ripened by hanging or by burying. A bunch (*to*) of green fruit is cut and buried in a hole in the ground 2 feet deep and lined with coconut husks. The bananas are placed on a bed of husks and covered with coconut mats (*polapola*), then more husks, and finally with earth. After three nights the bananas are ripe and are eaten raw or cooked on hot stones. If a meal is made of bananas the correct complement is *ipiipi*.

Some sugar cane (*to*) is grown today on the talo bed embankments. It is owned by the villages and at infrequent intervals is divided among all village members. The cane is peeled with the teeth and chewed by children and adults with great delight. The cane is *pono*; the rings around the cane, *vu*. The few papaya trees (*ninita*) and lime trees (*tipola*) are grown on Motu Kotawa and the fruits divided among all members of Yato village. One breadfruit tree on the atoll was planted by a man from Aitutaki. Its yield of fruit is negligible.

FLESH DIET

There were two staple flesh foods in former times, sea foods (fish, turtle, shellfish, crabs) and sea birds. (See pp. 27-31.)

No tapu against the eating of raw fish exists in Pukapuka, though visitors from Aitutaki have unsuccessfully tried to introduce the idea. Actually fish is not often eaten raw. A fishing crew occasionally eats some

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in scraping shell (*sutuyi*, *Nerita polita*) a little to left of apical whorl; four lashing turns of fine three-ply sennit braid (3) pass from handle through shell (2) where commencement end is buried, lashing continues with 16 transverse turns around distal end of handle (4); finishing of lashing buried beneath last turns; at proximal end a thin cord (7) of twisted *usoo* fiber is attached so that the scraper may be hung up; two notches (5, 6) cut in handle; the two plies of *usoo* cord lapped about notch (5) and fastened with figure-of-eight turns of fine, two-ply twisted sennit which pass around handle and between two notches; free end of sennit seized (8) around *usoo* cord and finishing end buried. *b*, coconut stand grater (*tuai*) (C8106): clam-shell grater (1) mounted on wooden stand (2) cut from solid block of *usoo* wood; horizontal base 1 foot 10¾ inches long, 4½ inches wide at proximal end, and 2 inches thick; two triangular notches cut into proximal end said to be old form of ornament; oblique arm (3) 7 inches long, 3 inches wide, and 2 inches thick; angle (4) at which arm leaves horizontal base obtuse, under side (5) shaped and rounded off slightly; distal end of oblique arm (6) slotted for depth of 2 inches and concave so that convex outer surface of shell grater fits securely against arm; a piece of cork (7) fitted against inner concave surface of shell grater; lashing of three-ply braided sennit (8) applied over cork and around arm; lashing consists of 24 turns with buried commencement, and under normal conditions finishing end would also be buried, but in this grater free end is not cut off flush with transverse turns but is knotted and left free (9) so that grater may be hung up by free end. *c*, back rest (*teke*) cut from solid block of *uakonoru* wood (C8161): 1, four-sided stand 8¾ inches high at back and 5¾ inches high at front, sides about 2½ inches wide; 2, main backrest, surface of which has slight transverse and longitudinal concavity, 2 feet 3½ inches long, 9½ inches wide, and ¾ inch thick at edges; continued by horizontal extension rest (3) 4 inches long, ¾ inch thick at sides; 4, end resting on ground has bevel 1½ inches wide; 5, under surfaces of horizontal extension (3) shaped obliquely, coming together in short mesial longitudinal ridge 1¾ inches high. *d*, wooden headrest (*ulunga lakau*) (C8184); roughly cut from single block of *puapua* wood: 1, pillow section 1 foot 7 inches long, 5 inches wide, and 2¾ inches thick; 2, four legs, each 3½ inches high, 3¾ inches wide, and 2 inches thick; 3, slight flare at base of right front leg due to unskilled workmanship and not to design.

Furnishings of Pukapukan houses today include little that is modern. Occasionally one sees a European chair. Most houses have wooden chests or suitcases in which clothes are kept. European mosquito nets are in common use, and several houses proudly display antique sewing machines. Beyond these few articles and bundles of mats, the house interiors are generally quite bare.

## FOOD UTENSILS

To harvest and husk coconuts, the climbing bandage (p. 146), husking stick, and carrying pole are used. The husking stick (*koyo*, C8049) of *ngongie* wood is driven into the ground for two thirds of its length. Informants were sure that the short stick was the only type used formerly, the worker kneeling or squatting on the ground to husk. Today, a much longer stick is generally used, the husker standing and bending over the stick. The carrying pole (*amo*) is a convenient length of coconut leaf midrib on which a nick is made at each end. Pairs of nuts are slung over the pole, the

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fiber joining end pairs resting in these nicks. The carrying pole is discarded when the worker returns to the village. Shaped, permanent carrying poles are never used.

A spatula-shaped implement (*kalokalo taumaya*, C8038) of *ngangie* wood is used to scrape out the soft flesh of the drinking nut. One end has a sharp point used for opening the nut by piercing the soft eye. The other end is broad and is used for scraping out the flesh after the liquid has been drunk. The implement is a combination of scraper and spoon.

A hand grater (*kalokalo ni mata*, C8091) is used for grating the flesh of the coconut to make the coconut food called *niu kalokalo*. The blade is the *uyaloto* section of a pearl shell. The nacreous inner surface of the shell forms the front surface (*alaalo*) of the blade, the black outer surface forms the back (*tua*) of the blade. The teeth of the serrated edge of the blade are termed *mata*. The blade is fixed to the handle of *ngangie* wood by 17 transverse turns of three-ply sennit, with buried commencement and finishing ends.

A stand grater (*tuai*) is used to grate the flesh of the mature coconut to make coconut cream. No shell graters (fig.12,b) are in use on the atoll today, but the stand-grater principle is retained in the use of a toothed metal grater attached to a wooden arm which is fastened to a box. To use the shell grater, the worker sat on the horizontal base. Holding the half coconut with both hands, she worked the flesh against the grater teeth with a downward rotary movement. The gratings fell onto a coconut mat on which the grater rested.

A coconut cream wringer (*tawonga*) is made from the husks of the coconut at the *niu mata* stage after burial in beach sand to macerate the interfibrous material. The husks are beaten with a stick to remove the decayed parts, washed in water, and are ready for use when dry.

Food packages for transporting talo pudding or fish are made by placing the food on the platter called *laulau ava loloi* and then folding back the two tails (*uakapona*) of its finishing edge over the food; the tails are pushed through the plaiting just below the midrib commencement edge, their free ends tied in a reef knot to make a compact package.

Water containers (*wowongi*; fig.13,e) are made from especially large coconut shells. The husk is removed and the shell opened at the soft eye. The liquid is poured off and the shell filled with salt water. When the flesh has rotted, it is removed through the soft hole with a special scraper called *valuyi* or *vala wowongi* (fig.12,o). A handle of sennit is tied to the netting on either side and the containers hung in pairs (*wowai*) to the rafters of the cook house. No containers were seen in use, their place being taken by buckets or empty cans.

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of one ply in passing over to the middle position. The under surface of the five-ply braid is termed *aloalo* and is marked by a pronounced transverse concavity. Shreds of coconut fiber left by the braiding are not cut off but are left, presumably to ease the rub of the malo against the skin. The outer surface (*tua*) of the malo is flat and smooth because the shreds are cut off. Braiding is very tight and strong. Informants mentioned that the utmost a good worker could braid each day was about 12 inches, and from this his hands became roughened and torn by tugging at the braiding to make it tight.

A sennit malo observed in the field was of five-ply braid, 33 feet long, ¾ inch wide, and ¾ inch thick. The commencement end (*komalango*) consisted of a two-ply twisted loop, 1¼ inches long. This loop was hitched over a bracing stick in braiding and the four ends braided as a four-ply braid for 1 inch. A fifth ply was then added and the rest of the malo braided five-ply. The finishing end (*wakootinga*) was fastened with an overhand knot, and a length of two-ply twisted sennit, 4 feet long, 1/16 inch in diameter, was knotted to this end. This length of twisted sennit (*kowa li malo*) is used to secure the malo to the waist when worn or to fasten it in a flat disc when stored.

Malo C8146 is made of two shorter lengths of five-ply sennit joined together by knotting. One section of the sennit is ½ inch wide, 5/16 inch thick; the other section ¾ inch wide, ⅜ inch thick. A malo is wound for storage in the shape of a disc (*iko*, pl. 3*C*). The malo is laid on the ground, the commencement end folded in and the rest of the sennit wound round this core to produce a flat disc 11 inches in diameter. The turns are held together by the *kowa li malo* cord which passes from the circumference through the center hole of the disc and back to the circumference again where it is looped round the first turn. The free end is passed round the circumference for 3 inches, then passed down to the center hole, and back to the circumference again, these turns being repeated at every third inch round the circumference.

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The ordinary, quickly made, climbing bandage (*koanga*) is made from strips of coconut midrib (*kalava*), chewed to soften the fibers, and then looped by fastening the ends with a reef knot. The coconut climbing bandage (C8057), *koanga kake niu* (climbing bandage to climb coconut tree), is 30 inches long, 5/16 inch thick. More permanent and stronger bandages, braided from pandanus roots, are used by a bird catcher who wishes to be sure that a bandage will not break and throw him to the ground during the several hours he remains in a coconut tree. Young aerial roots of the *yulu* species of pandanus are cut as long as possible and baked in the oven or heated over a fire. The roots are pounded with a piece of wood until the fibers are soft and flexible. Strands of this material are made into a three-ply braid, the ends knotted to form a loop. Climbing bandage C8139, (*koanga yulu*) is three-ply braid, 45 inches long, ⅜ inch wide and ⅜ inch thick.

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Men today spend much of their time at braiding sennit and *nuo* fiber for ropes and fishlines. When the price of copra was high, many European fishlines and ropes were in use, but low copra prices have sent the men back to native materials though they consider cordage making a laborious job.

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WOODEN HOOKS

227 Wooden hooks vary greatly in size according to the fish they are designed to catch. Small wooden hooks are used interchangeably with the single-piece pearl-shell hook (*tope*) for catching in deep water the smaller reef groupers. Large wooden hooks are used to catch *Ruvettus* and other large deep-sea fish. All wooden hooks are termed *kau*; the largest V-shaped hook is sometimes distinguished by the name *yomo*, the largest U-shaped hook by the name *yuwe*.

Wooden hooks are of two shapes, the U-shape and the V-shape. All the hooks are made from *ngangie* wood; most of them from forked branches, [245] some of the U-shaped ones from branches that have been artificially bent and made to grow in this position. The hooks are two-piece, the point being fitted to the point limb with a lashed scarf join. The upper end of the shank is narrowed and provided with a shank knob to support the lashing of snood to shank.

227 284 In larger hooks used for *Ruvettus* and other deep-sea fish, the lashing of point to point limb may be in two or three separate sections. This occurs in five of the eight deep-sea fishhooks available for study. The remaining three hooks are freshly lashed, probably by inexpert fishermen who knew that the hooks, intended for a museum collection, would never be used for fishing. The middle of three lashings is put on the smaller hooks about 1 inch below the head of the functional point, 2 or more inches below this point on larger hooks. After the transverse turns completing this lashing have been made, the lashing is covered by tough fish scales (*unuwi*) of the *malaten* fish which project above and below the lashing. The ends that project below are caught with the transverse turns of the lowest lashing, those that project above are caught with the turns of the topmost lashing. The fish-scale covering protects the middle lashing from being destroyed by the biting teeth of a hooked fish. Because it is usual to protect only this middle lashing, one may assume that a hooked *Ruvettus*, for example, is expected to swallow a hook to the point where his jaws close on this middle lashing, not on the lowest or topmost lashing. The free end of the lowest lashing is carried up over the fish scale covering to commence the topmost lashing; even if this longitudinal thread is severed, the topmost lashing can not become unravelled because the free end is effectively buried in the descending turns. (See lashing in figure 37*c*.)

The clearance between the point and the shank limb varies greatly among the hooks. In small wooden hooks the clearance ranges from 3/16 to 3/8 inch, in the larger hooks from 1 3/16 to 3 1/4 inches. Kennedy states that the required clearance is equivalent to the thickness of the edgewise thumb with the point against the middle of the nail (19, p. 17). Four out of 12 hooks have approximately this clearance, four small hooks have less than this clearance (about 3/16 inch), four large hooks have a much greater clearance (up to 3 3/4 inches). Leaving aside the four smallest hooks used to catch smaller deep-sea fish, I presume that four of the remaining eight wooden hooks used for large deep-sea fish were probably made for ordinary fishermen, the other four for expert fishermen who prefer the hook with the wide clearance. Both types of hook, those with wide and those with narrow clearance, were in common use.

In several of the hooks the point is directed away from the mesial longitudinal [322] line of the shank limb. Presumably the explanation for this in the Pukapukan hooks is the same as that given by Kennedy for Ellice Islands hooks (19, p. 16), that is, the manner in which the scarf surface was cut on the point limb, previously with an adz, today with knife or saw.

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868 of fishing there is in tales and chants. Similarly, in the learning of the old
533 chants and songs, practices are held before some village contest, and the
245 village group of men and women, young and old, sit up throughout the night repeating time and time again the songs and chants which are to be sung at the conclusion of the contest. At the present time, when the villages go to the reserves to make copra, the opportunity is taken to alternate nights devoted to the practicing of chants with the nights devoted to the customary hymn practices.

## PUBERTY

304 No surgical operation or physical manipulation was performed on the Pukapukan boy or girl. A foreskin naturally stretched back from the glans was considered a shameful abnormality (*luma*) because it gave the appearance of circumcision. It was a matter for joking among the girls and caused much sorrow to the boy affected. One reference only to circumcision occurs in the folk tales (p. 54).

841 The occurrence of the first menses is spoken of as the opening or piercing
864 of the body (*na pu*).

145 Though her mother does not tell her in advance what to expect, a girl is never-
881 less well informed from discussion with her older girl friends. When she finds herself menstruating (*toto*) for the first time, she says to her mother, "I aku na toto" (I am bleeding). Informants say that a girl is naturally frightened (*mataku*) or ashamed (*wakama*) when she first discovers she is menstruating. Cramps are common in both stomach and back. Periods range in length from three days to a week. The menstrual pad (*pulu tautape*) consists of several coconut husks pounded soft and tied with a piece of coconut fiber. Each pad is disposed of in a separate hole dug on the beach for the purpose. There is no fear of the blood. The method of disposal is merely a convenient way of getting rid of soiled objects. A woman does not have sexual intercourse during the menstrual period, on pain of becoming ill from having the blood "pushed up into her chest"; but there is no tapu on her activities or contacts with members of the household. No physical explanation is given for the facts of menstruation. If a young girl commences to menstruate before her mother considers that other signs of physical maturity warrant it, the mother is angry with the girl because this indicates that she is already having a love affair with some man or is, at least, already interested in the opposite sex. Molingi said, "Girls who do not interest themselves in men do not start to menstruate until later on when they are older and ready to marry. Girls who menstruate too early have an undue fondness for men."

841 Two types of physical therapy are used in cases of menstrual trouble. For menstruation prolonged beyond the average four days, the blood is washed away from the pudenda, and the parts bathed in hot water. For delayed menstruation marked by pain, the body is bathed in cold water, either fresh or salt, to cool off the body; and the abdomen is then pressed (*lomilomi*) until menstruation commences.

886 Informants could not explain the recognized connection between the ces-
[843] sation of the menses with pregnancy, nor could they explain the physiology of the menopause. This is referred to as the closing of the blood flow by the

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more logical to bury the corpse with the head facing this direction. It is likely, I think, that the idea of the corpse facing the west is a survival of the common Polynesian concept that the point of departure for the soul on its way to the Underworld is always to the west.

After the corpse is covered with the coral and sand dug from the grave, a food division is made among all the people who attended the wake whether or not they brought food or special gifts for the corpse. Where the ceremony is on a large scale, all the people in the village of the chief mourners send nuts to the deceased to enable his family to make a large food division in keeping with its dignity. Further nuts are obtained by stripping the row or rows of coconut trees planted round the border of each cemetery, reserved for use in death divisions and tapu for ordinary purposes. They are called *niu wakavale* (nuts to tame) with the idea, informants suggested, of taming or satisfying the spirit of the dead person, who would not go to the Underworld happy unless he knew that honor had been satisfied by a food division among all those who had attended his wake. For an especially impressive division, pigs, fish, and prepared talo are also divided among the mourners. The close bilateral relatives of the deceased formerly remained at the cemetery to watch the grave for a period of one or two moons. This mourning period was termed *taupo*. The mourners lived in a permanent house (*wale matenga*, death house) built in each cemetery. The relatives ate and slept by the grave, watching over it continually. The men might leave for a time to fish, the women to get talo which they prepared in a cook house (*wale imu*) close to the death house. Relatives brought food at regular intervals to the mourners. Between the two big cemeteries of Muliwutu and Matanga lineages in Ngake there is a pile of *Tridacna* shells, a sort of midden heap, approximately 20 feet long, 10 feet wide, and 4 feet high in some parts—silent witness of the many years these cemeteries have been in use and of the popularity of clam flesh with mourners. Throughout the period fresh nuts, fish, and talo for the soul to eat if it came back at any time from the Underworld were hung up outside the house of mourning by cords tied to the eaves purlins. It is evident that thieves might sometimes steal this food, for there is a special name, *tangata kaiyepu*, for such a thief.

On the second or third day after interment the mourners beautified (*wakalelei*) the grave by spreading over it white coral pebbles carried in coconut baskets (*kete*) from the outer beaches. These pebbles were not replaced when they became weather-worn and grey. The work on the grave completed, a food division, called *puyia wale*, was made by the deceased's relatives among all those who attended the mourning, sat with the corpse, or (today) helped to build the coffin, dig the grave, carry the corpse to the grave, or beautify the grave.

When the deceased's closest relative felt that the mourners' hearts were

1:Beaglehole and Beaglehole E-5 (1934-5) 1938 Pukapukans



their heads on upturned palms, and carried it thus to the grave. The people of the island followed, chanting, with arms raised and palms upturned. On reaching the grave they recited the following chant of which the language is archaic in part and the translation only approximately correct:

| | |
|---|---|
| Kai yoki yokio | Carry above the head (?) |
| Yuyu matalangi | Wet (against the) face of the sky |
| Tipa, tipa | To one side, to one (the other) side, |
| Ulu ulu ei, ulu ulu ei | Up and down, up and down, |
| Ngaluei, ngaluei, | Undulate, undulate, |
| Tai ale | Stand back (?) |
| Ui! | Throw down! |

The bearers swung the corpse to and fro to the rhythm of the chant, and when the word "Ui!" was shouted out, they threw it with all their strength into the grave. The people listened as it fell against the bottom. If the body was heard to grunt, the omen was good. If there was no sound, a man was sent into the grave to fasten a length of sennit (*kavu*) to the corpse bundle. The body was hauled from the grave and hoisted on high, the chant was recited again, and the body crashed into the grave. All listened, and if no grunt was heard, the body was hoisted out and thrown a third time. If a grunt was heard, all was well; but if no sound was heard, the body was nevertheless left in peace, but the late chief was cursed for not vouchsafing the people some omen for the future. The rationalization for this procedure is this: the grave was dug deeply so that the chief's soul might quickly meet the spirits of his ancestors (*tupuna*) and the gods of the Underworld to request favors from them ensuring prosperous and happy times for the people on earth. The grunting sound for which everyone anxiously listened was a sign from the chief that the gods had agreed to his request. No sound meant that the chief was dissatisfied with his burial and refused to intercede with the gods below. Hence the people cursed him for being ungrateful to them.

Though there was no custom of using a canoe as a coffin for the chief, Te Kula, who lived approximately thirteen generations ago, buried one of his canoes in the ground and used this as a tomb for his children, opening the grave to place each of his deceased children within the canoe. Te Kula was himself buried directly in the earth close to the canoe. A row of stones marks the outline of the canoe, and other stones delineate the grave of the chief (p. 163).

After the chief was finally laid in the grave, earth and pebbles were filled in on top. The closest relatives remained by the grave. The young men of all three villages went to Loto's reserve, Uta, to get coconuts for the chief's funeral division, called *kava* or *laukavu*. Other nuts were procured from the reserved trees (*niu wakavale*) round the chief's cemetery. The nuts, called *te kava o te aliki*, were removed from the trees in clusters and carefully lowered to the ground by a rope. No nut was thrown to the ground, and any nut that fell from the cluster as it was being lowered was discarded. Dropped nuts became imperfect and therefore derogatory to the prestige of the late chief.

The division of nuts took place on the meeting ground (*awanga*) of the old men's group (*tupele*). A strong man, who was chosen, picked up a cluster of nuts, held it before him with both hands, and gave it a sudden jerk. The nuts that fell from the stem were divided among the people; the nuts that remained on the stem were reserved for the god of coconuts, Tamayei. The man who shook off the nuts was called *te toli tuunia*. A divider who was so strong that he shook off all the nuts, leaving none for the god, or so weak that he shook off too few for the people (say only 10 out of 20) was dismissed. The god's share of the nuts was taken to the place called Taikele (at the rear of the present London Missionary Society church) and left on the ground to rot or to sprout; no man would dare to remove them on pain of death inflicted by the gods.

The relatives of the late chief remained in the death house to mourn for one to three moons. Covered with mats, they stayed mainly inside the house, never talked above a whisper, and did no work, being fed by other relatives not in mourning. There were no special food tapus or mourning adornment. When the mourning was ended, the

1:Beaglehole and Beaglehole E-5 (1934-5) 1938 Pukapuka



526 height, the winner is the one who, having climbed to the height indicated, first reaches the ground. Each contestant stands before a tree with a climbing bandage on his feet. The left hand rests on the tree trunk; the right hand is clasped around the tree. At the given signal (at present, on the count of three) each man springs up the tree and climbs as fast as he can. In coming down the tree he may slide as much as possible and leap from the tree when about 8 or 9 feet from the ground.

**Coconut-husking contests** (*yokaga niu papaku*). Three carefully sharpened husking sticks are placed in the ground, 1½ paces apart, to form the apices of an equilateral triangle. The husking sticks are carefully placed to make an angle of about 70 degrees with the ground. On a small coconut leaf mat impaled over the stick, the village husker kneels, squatting on an unhusked nut. Sixty *yakali* nuts are placed in the center of the triangle. Each husker impales a nut on his stick. At the signal the men start to husk and continue until all the nuts are husked, including the nuts on which the men squat. The man who husks most nuts wins the contest. One man may stop the contest at any time to repair his stick if it falls over or if its point breaks or blunts. Behind each man stands his second (*tokotoko*), a man from another village, who counts his nuts at the end. In an average contest, three men husk 60 nuts in 2 minutes. After one contest, the points of the sticks are resharpened and fixed in the ground again, and another contest follows.

526 Nuts are competitively husked not only in inter-village contests but also by villagers
245 preparing for a feast, making copra, or dividing nuts from the reserves. At the present time, in making copra at the reserves, after each adult has collected his weekly quota of from 100 to 200 nuts, all the young men, accompanied by children, women, and old men move from one pile of nuts to the next, holding a husking contest at each pile. In this contest two or more men compete against each other until the pile is finished. The group spends the whole day going thus from one pile to the next. Sometimes a women's team accompanies the men to husk the nuts of the women, at times competing against the men. The mixed contests are occasions of great fun-making which reach a climax if a woman defeats a man. The women wax jubilant, and the onlookers hurl all sorts of advice and ridicule at the unlucky man, who is glad to make his escape. The news spreads like wildfire through the copra settlements. The old men are quick to make suitable witticisms, and it is long before the defeated man hears the last of his shame.

526 **Composite dart-throwing contests.** Held on an open space (*malae*) usually on the beach at low tide. An exhibition contest was given during our stay. The *malae velo* (dart-contest space), the beach in front of Loto village, was cleared of rubbish before the contest commenced; men of Yato cleared one half, men of Loto and Ngake the other half. Rubbish was thrown into the sea, and the loose coral was pushed off to the side with the butt ends of coconut midribs. This made a clear space about 75 yards long and 15 yards wide. Two throwing pits (*taua*) were dug, one at each end of the *malae*. Each pit was 6 feet long and 3 wide, and sloped from the ground level at the rear to a depth of 1 foot in the front. The sand from the pit was piled up at the front end to form a small batter used as a throwing base (*muli taua*).

The composite dart, *velo*, is described on page 214. The thrower takes the dart in his right hand, holding it at the *yiku* end with the thumb and middle finger, the index finger steadying the *yiku* tip. To test the hold, balance, and aim of his spear, he takes a preliminary run (*liolio*). He starts five paces behind the *taua*, takes several quick steps forward toward it, holding the dart with the forearm vertical, the dart horizontal and level with or a little higher than the shoulder. He stops in his run and, with the fingers of the left hand, plucks (*makapauli*) the dart at a point about 2 feet from the *yiku* end. Then he moves back to the starting point, makes another *liolio*, and again tests the dart to be sure that his trajectory is correct. The third time, he advances to the *taua*, plants his left foot against the batter, and hurls the spear (*makapoi te velo*). A well-thrown dart moves through the air horizontally about 10 feet above the ground, strikes the ground at an obtuse angle, and then slithers (*totolo te velo*) a long distance

1:Beaglehole and Beaglehole E-5 (1934-5)1938 Pukapukans



### OTHER PLANT FOODS

No origin myth is remembered for pandanus. Though it is not cultivated, pandanus grows abundantly. The keys (*penu*) may be eaten raw when ripe, with or without complement (*kinaki*). They may be sliced and baked (*wala tao*) and eaten with *ipiipi*. Grated raw and added to talo puddings (*olo wala* and *likoliko wala*) they give a sweet flavor. The juice of baked keys (*makano*) is used in the same way. The fruit is enjoyed by adults and children and provides an important flavoring and sweetening agent in the native diet. Children crack open the keys and chew the inner kernel. The woman in the moon, Yina, is said to be seen kneeling before a stone cracking open pandanus keys.

The banana was among the items fished up by Maui. Of the several varieties of banana (*wuti*) growing on the island today, *wuti pukapuka* is said to be old and indigenous. The trunk of the tree is called *pu wuti*. *Lito* is a small banana leaf; *lauwuti*, a large leaf, used extensively in cooking as a food wrapper; *laumatu*, the old, dried, and withered leaf; *kau*, the leaf midrib; *kili*, the fruit peel; *kiko*, the flesh. Bananas are not abundant on the atoll and are not important in the daily diet. They grow in the talo beds and close to the houses. When available, they are much in favor as gifts. A household may get a small bunch of fruit from its trees once in five or six months. Bananas are ripened by hanging or by burying. A bunch (*ta*) of green fruit is cut and buried in a hole in the ground 2 feet deep and lined with coconut husks. The bananas are placed on a bed of husks and covered with coconut mats (*polapola*), then more husks, and finally with earth. After three nights the bananas are ripe and are eaten raw or cooked on hot stones. If a meal is made of bananas the correct complement is *ipiipi*.

Some sugar cane (*to*) is grown today on the talo bed embankments. It is owned by the villages and at infrequent intervals is divided among all village members. The cane is peeled with the teeth and chewed by children and adults with great delight. The cane is *pona*; the rings around the cane, *va*. The few papaya trees (*ninita*) and lime trees (*tipola*) are grown on Motu Kotawa and the fruits divided among all members of Yato village. One breadfruit tree on the atoll was planted by a man from Aitutaki. Its yield of fruit is negligible.

### FLESH DIET

There were two staple flesh foods in former times, sea foods (fish, turtle, shellfish, crabs) and sea birds. (See pp. 27-31.)

No tapu against the eating of raw fish exists in Pukapuka, though visitors from Aitutaki have unsuccessfully tried to introduce the idea. Actually fish is not often eaten raw. A fishing crew occasionally eats some

2: Macgregor E-2 (1933) 1935 Pukapukans
244, 245

[Information in this source which is either inadequate, incorrect or duplication has only been filed in category 116: for taro cultivation and responsibility for making copra, see p. 13.]

244 when the first leaves are just opening.

241 Useful plants such as bananas, sugar cane, talo, niu [coconut tree], etc. should all be planted at the time of the new moon if they are to grow and produce well.

625 [See 1: Beaglehole and Beaglehole, p. 232--analyst.] Through
616 the idea of a women's pule [guard] is new, informants noted
621 that it was entirely consonant with Pukapukan patterns that the woman's pule should be organized on wua lines, all the Kati women serving at once, followd by the Lulu women. This would only include those members of the wua who were members of the village and hence represents village membership primarily, wua membership secondarily.

597 [See 1: Beaglehole and Beaglehole, p. 251--analyst.] It is
592 probably not an over exaggeration to say that there is not one household in Pukapuka which does not number among the children of the house at least one, if not more, tama kokoti, and at least one tama wangai, who may or may not later become a tama kokoti.

581 [See 1: Beaglehole and Beaglehole, p. 295--analyst.] One informant felt that obediance was probably the greatest virtue to be found in a woman, but man looks for sexual pleasure first of all. Then he looks for other virtues.

522 While the Pukapukan language lends itself easily to puns,
196 there is no such form of humor nor appreciation of it.

776 [See 1: Beaglehole and Beaglehole, p. 310--analyst.] When
245 the clusters of nuts were brought to the malae of food division,
771 one was chosen to take each cluster and shake it. All the
782 nuts that fell from the cluster were divided among the people. All that remained on the bunch were given to the god. The number to be left on the stem was preferably 1-4. If a man shook a bunch and more than 5 remained for the share of the god, this was considered too many, and this food divider was dismissed never to be chosen again. He was considered to be too partial to the god, and not partial enough to the people of the island. After all the clusters were shaken thus, the nuts for Tamayei were gathered together and taken to a back part of the bush, somawhere behind the site of the present church, and then laid on the ground. Here they are left to rot and it is presumed that the god feasts from the spiritual essence of the nuts.